first memory means for storing said data fields and data field descriptors, said data field descriptors having a plurality of fields describing attributes of said associated data fields,

second memory means for storing signals which represent a logical instruction,

addressing means coupled to said first and said second memory means for indirectly accessing said data fields by first accessing said associated data field descriptors,

means responsive to said addressing means for testing said fields of said associated data field descriptors, said testing means identifying the attributes of said associated data fields, and

first means responsive to said testing means and said second memory means including:

second means coupled to said first memory means for altering said associated data fields accessed by said addressing means so that they are compatible, and

third means coupled to said first memory means for changing said attributes of said associated data field descriptors, said first means operating on said altered associated data fields in accordance with said logical instruction.

2. An apparatus as defined in claim 1 wherein one of said attributes described by said data field descriptors is the data format descriptor of said associated data field, said data format comprising encodings for a plurality of different types, said encodings including alphanumeric strings, unpacked decimal, packed decimal, character string, unsigned short binary, signed short binary, unsigned long binary, signed long binary, short logical binary and long logical binary data formats.

3. An apparatus as defined in claim 1 wherein another of said attributes described by said data field descriptors is a key descriptor, said key descriptor including a plurality of different encodings indicating the dimensionality of said data field.

4. An apparatus as defined in claim 1 wherein a third of said attributes described by said data field descriptors is a length descriptor, said length descriptor describing the length of said data field.

5. An apparatus as defined in claim 1 wherein said data field descriptors are less in number than said data fields.

6. An apparatus for use with data fields having a plurality of different data structures, said apparatus comprising:

memory means for storing signals which represent a logical instruction;

means for performing said logical operation on at least one of said data fields, including:

first and second base registers,

first means responsive to signals corresponding to a first portion of said logical instruction for locating a first data field descriptor,

second means responsive to a first word in said first data field descriptor, said first word identifying said first base register, said second means locating a corresponding one of said data fields by concatenating the contents of said first base register with said first word, at least a second word in said first data field descriptor describing the attributes of said one data field,

third means responsive to signals corresponding to a second portion of said logical instruction for locating a second data field descriptor,

fourth means responsive to a third word in said second data descriptor, said third word identifying said second base register, said fourth means locating a corresponding second data field by concatenating the contents of said second base register with said third word, at least a fourth word in said second data field descriptor describing attributes of said second data field, and

fifth means responsive to signals corresponding to a third portion of said logical instruction for transmforming at execution time said second data field in accordance with said attributes described by said first data field descriptor.

7. An apparatus as defined in claim 6 wherein said second data field descriptor describes different types of the same attributes of said first data field descriptor.

8. An apparatus as defined in claim 7 wherein said second data field located by said second data field descriptor has a different data format than said first data field located by said first data field descriptor.

9. An apparatus as defined in claim 6 wherein said data field descriptors include length and key field descriptors.

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